Instructions for the Dermatohistopathology Service at PDS

When to biopsy:

- Unusual skin lesions, or skin lesions that are not responding to, or worsen after, therapy.
- Biopsy only after skin cytology and skin scrapings have been done, and any secondary infections have been cleared.
- Secondary pyoderma and self-induced changes can easily mask primary disease.
- If possible, avoid biopsy collection within two weeks of corticosteroid therapy.
    - If unavoidable, the dosage used, type of drug administered, method of administration and duration of therapy are important and should be included in your history.
- Other types of therapy usually do not cause problems diagnostically, but any medications with patient response should be briefly mentioned.

What to biopsy:

- Primary skin lesions are ideal but are not always seen, and thus, selecting multiple sites with various secondary lesions is then suitable.
- Primary and secondary skin lesions are listed on our submission forms.
- Whenever crust is a prominent feature of clinical disease (such as pemphigus foliaceus, dermatophytosis, dermatophilosis), please submit as much of this as possible.
    - Trauma to the patient may be minimized by peeling additional crust, and placing in formalin, with the punch samples.
- Please avoid biopsying sites that have obviously been subjected to self trauma.

When to also include 'normal' skin:

- These are often beneficial but especially so in cases of clinically noninflammatory alopecia.
    - In such cases, we do ask that you also:
        1. Draw a line in the direction of hair growth on the patient's alopecic skin prior to biopsy that will allow us to properly orient the sample so that hair follicles can be evaluated along their entire length,
        2. Sample the most longstanding or affected areas, and
        3. Place biopsies from clinically 'normal' skin in a separate submission tube to those from clinically 'affected' skin, with appropriate labels.

At biopsy:

- Use a new punch biopsy per patient.
- Other than carefully scissoring very long hair, do not prepare the skin in any way.
- Local anesthesia does not interfere with the interpretation when it is injected into the subcutis beneath the biopsy sites.
- Do not compress / distort tissue when taking.

Type of biopsy:

- Except for difficult sites such as footpads, eyelids, nasal planum and ears, punch biopsies are the simplest and quickest type of biopsy to collect and usually supply the most information.
    - Six mm punches (or larger – 8 mm) are best.
    - Four mm punches are ideal for very small animals, eyelid margins and ears.

- Please refrain from trying to include margins in a punch biopsy specimen as difficult to orientate and affected site may not be in the plane of section for histology.
- Punch biopsies usually maintain their shape and thus do not require any type of wood or cardboard support.

- Wedge or elliptical samples are also very good and can be used to include an entire large lesion (such as a pustule or vesicle or nodule) or a deep lesion (panniculitis, cellulitis) or a lesion with a margin of normal skin.

Number of biopsies:

- This depends on the uniformity, size and number of lesions and the experience of the clinician.
- Single biopsies are often not as useful as multiple (two to four) punch biopsies, unless they are the large elliptical type.
    - We always worry about what we may be missing with a single biopsy.
- The more biopsies that are submitted the greater the likelihood that the lesions seen are representative of the problem and not secondary.
- If biopsies are from different areas such as the face and abdomen it is helpful to place each in a separate container and label as to site.

Fixation:

- Place sample in formalin within 5 minutes of collection.
- Neutral buffered 10 per cent formalin is best. We encourage the use of serum (red top) tubes as containers. They are easy to label and package.

Submission forms:

- PDS forms are suitable for all species and are designed to be quick to fill out and yet supply all the information needed to interpret the histologic lesions.
- Omitting entries in the history may interfere with our ability to correlate the histologic findings with the clinical findings (i.e., breed of dog, coat color, the age of the animal in weeks, months, or years, whether or not the animal is entire or neutered/spayed, duration of problem, distribution of lesions, response to therapies, pruritus, etc.).
- Use the diagrams on our submission forms (or draw your own) to indicate the origin and distribution of lesions, with details as appropriate (i.e., dorsal or ventral surface when feet are affected).
- Please include your list of clinical differential diagnoses or conditions you are interested in excluding.

Shipping:

- Ship by courier.
- Freezing artefacts make accurate histopathologic evaluation difficult and even impossible.
    - When shipping during very cold weather (Saskatchewan winters), fix the biopsies in formalin (overnight is usually sufficient for punches), and then transfer to 70% alcohol for transport just prior to shipping.

WHEN IN DOUBT, PLEASE CALL FIRST